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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masataka Ota

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OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

03/01/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com

jarmstrong@oliff.com

Office Action Summary	Application No. 10/589,434	Applicant(s) OTA ET AL.	
	Examiner CYNTHIA LEE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

This Office Action is responsive to the amendment filed on 11/23/2009. Claims 1-8 are pending. Applicant's arguments have been considered, but are not persuasive. Claims 1-8 are finally rejected for reasons of record and for reasons necessitated by applicant's amendment.

The 35 USC 112, 2nd rejection has been withdrawn.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 1/15/2010 has been placed in the application file and the information referred to therein has been considered.

Specification

The Specification received 11/23/2009 has been accepted by the Examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujio (JP 11-214025) in view of Wheat (US 6727013).

Applicant's claim 1, 5, and 6, Fujio discloses a control device 92 sets a freeze proofing mode by an operation mode switching signal from a control panel 33. When setting the freeze proofing mode, if the ambient temperature of the apparatus is

Art Unit: 1795

identified as being a fixed threshold or lower according to a detected signal from a temperature sensor 34, the control device 92 causes a fuel cell 42 to generate a quantity of heat corresponding to the ambient temperature through the control drive and stopping of the fuel cell 42. The heat generated from the fuel cell 42 moves to circulation water and heat up the water, which circulates between the fuel cell 42 and a main water tank 56 using a pump 66. See Abstract.

Fujio discloses if the fuel cell is below a predetermined threshold, and heat is generated. It moves to the circulating water which heats circulating water. Thereby, even if the atmospheric temperature of the device exterior is below freezing point, the water which circulates through between the main tank and the fuel cell is maintained from freezing point to an elevated temperature, and freezing is prevented [0040]. Regarding claim 6, it is noted that intermittent operation is forbidden because heat is generated only if the fuel cell is below a predetermined threshold.

Fujio discloses of measuring the temperature of the ambient, but does not disclose the temperature of a specific component that is external to the fuel cell and that contains moisture (Applicant's claim 1). Fujio does not disclose wherein the specific component is at least one of a valve, a passage, and a humidifier arranged on a flow path for a fuel gas or oxidizing gas (Applicant's claim 2). Wheat discloses of measuring the temperature of the stack, the ambient temperature, and the water tank temperature to determine if heating is necessary to prevent freezing of the fuel cell (3:25-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to measure the temperature of the water tank, as taught by Wheat, to heat the

Art Unit: 1795

fuel cell stack for the benefit of preventing freezing. It is noted that the water tank contains moisture as recited in Applicant's claim 1. Regarding claim 2, the water tank 56 is a humidifier because it humidifies the anode (Fujio's [0021]).

Regarding claim 3, the temperature of the specific component is measured directly by a temperature sensor provided corresponding to the water tank.

Regarding claim 4, the temperature of the specific component is measured indirectly based on the external air temperature because the ambient air affects the water tank temperature.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujio (JP 11-214025) in view of Wheat (US 6727013) as applied to claim 1, further in view of Iwasaki (US 6497972).

Fujio modified by Wheat teaches all the elements of claim 1 and are incorporated herein. Fujio modified by Wheat does not teach an electricity storage device that stores electrical power generated by the fuel cell (Applicant's claim 7), nor a fuel cell hybrid vehicle. Iwasaki teaches a hybrid vehicle wherein a battery 45 accumulates electric power generated by the fuel cell 29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fuel cell of Fujio modified by Wheat in the hybrid vehicle of Iwasaki for the benefit of providing power in a hybrid vehicle.

Regarding claim 7, Fujio discloses if the fuel cell is below a predetermined threshold, and heat is generated. It moves to the circulating water which heats circulating water. Thereby, even if the atmospheric temperature of the device exterior is below freezing point, the water which circulates through between the main tank and the fuel cell is maintained from freezing point to an elevated temperature, and freezing is prevented [0040]. Thus, the fuel cell operates intermittently between the generation state and the generation stop state.

Response to Arguments

Applicant's prior art arguments filed 11/23/2009 have been fully considered but they are not persuasive.

Applicant argues that prior art does not disclose nor suggest switching between a power generation state and a power stop state of a fuel cell to prevent freezing of the system.

The Examiner remains unpersuaded. It is noted that the operation of Fujio's fuel cell only when the ambient temperature meets a threshold or lower reads on Applicant's limitation "operate intermittently by switching between a power generation state and a power generation stop state, wherein it is determined whether to stop power generation during intermittent operation" as recited in claim 1. The fuel cell inherently operates intermittently because it only operates when the temperature drops below the threshold value. During the intermittent operation, the fuel cell determines whether to stop power generation only when the ambient temperature meets a threshold or lower. The

Art Unit: 1795

temperature is based on a temperature sensor provided corresponding to the water tank.

Applicant argues that Wheat fails to teach measuring the temperature of a specific component arranged on a flow path for fuel gas or an oxidizing gas, and thus fails to cure the deficiencies of Fujio. Iwaski also fails to cure this deficiency.

In response, Fugio discloses that the water tank humidifies the anode [0021] and receives the anode exhaust, and thus reads on Applicant's "arranged on a flow path for a fuel gas" of claim 2.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art
Unit 1795